CLAIMS

1. Apparatus for sheathing an endoscope, comprising:

a dispenser, having entry and exit ports defining a transit passage through which the endoscope may pass; and

a flexible sleeve, at least a portion of which is bunched in a vicinity of the dispenser, the sleeve comprising a distal end, which is closed, and a proximal end, which is open and fixed to the dispenser so that as the endoscope is advanced in a distal direction through the transit passage, the endoscope enters into the sleeve through the proximal end and engages the distal end of the sleeve, thus causing the bunched portion of the sleeve to be extended so as to cover a distal part of the endoscope that protrudes through the exit port.

2. The apparatus according to claim 1, wherein the dispenser is adapted to be placed so that the exit port is adjacent to a body opening of a patient, whereby the distal part of the endoscope that is covered by the sleeve extends through the body opening into a body passage of the patient.

3. The apparatus according to claim 1, wherein the bunched portion of the sleeve is adjacent to the distal end of the sleeve, and the sleeve is adapted to extend away from the bunched portion in a proximal direction so as to cover the distal part of the endoscope as the endoscope is advanced.

4. The apparatus according to claim 3, wherein the dispenser is adapted to capture the sleeve as the endoscope is retracted through the transit passage in the proximal direction, so that the sleeve is removed from a proximal part of the endoscope that has been retracted through the entry port, and the removed sleeve is gathered in the dispenser.

5. The apparatus according to claim 4, wherein the sleeve is adapted so that after the endoscope has been retracted, whereby the sleeve is removed from the proximal part of the endoscope, a further part of the sleeve extends away from the bunched portion in the proximal direction so as to cover the distal part of the endoscope as the endoscope is again advanced through the transit passage.

6. The apparatus according to claim 1, wherein the dispenser is adapted to capture the sleeve as the endoscope is retracted through the transit passage in a proximal direction, so that

the sleeve is removed from a proximal part of the endoscope that has been retracted through the entry port, and the removed sleeve is gathered in the dispenser.

7. The apparatus according to claim 6, wherein the dispenser is adapted to gather substantially all of the sleeve, so that after the distal part of the endoscope has been retracted through the entry port, substantially all of the sleeve is contained within the dispenser.

8. The apparatus according to claim 1, and comprising an external sleeve, fixed to the dispenser, which is adapted to be extended from the dispenser when the endoscope is retracted through the transit passage, so that the external sleeve covers the flexible sleeve that was extended to cover the distal part of the endoscope.

9. The apparatus according to claim 8, wherein the dispenser comprises a proximal section, which defines the entry port and to which the flexible sleeve is fixed, and a distal section, which defines the exit port and to which the external sleeve is fixed, and wherein the distal section is adapted to be moved away from the proximal section of the dispenser so as to extend the external sleeve over the flexible sleeve when the endoscope is retracted through the transit passage.

10. The apparatus according to any of claims 1-9, wherein the sleeve is adapted to be inflated while the endoscope is advanced through the transit passage.

11. The apparatus according to claim 10, wherein the sleeve is adapted to be deflated while the endoscope is retracted proximally through the transit passage.

12. The apparatus according to claim 11, wherein the dispenser comprises a channel, communicating with the sleeve, for inflating the sleeve while the endoscope is advanced and for applying suction to the sleeve while the endoscope is retracted.

13. The apparatus according to claim 10, wherein the entry port is adapted to fit snugly around the endoscope so as to prevent escape of pressure through the entry port when the sleeve is inflated.

14. The apparatus according to any of claims 1-9, and comprising a working channel extending through the sleeve alongside the endoscope, the working channel comprising distal and proximal extremities, wherein the distal extremity is fixed to the distal end of the sleeve, and the proximal extremity protrudes from the dispenser.

15. The apparatus according to claim 14, and comprising a sealing element, which is adapted to seal the proximal extremity of the working channel while the endoscope is removed from the dispenser.

16. The apparatus according to any of claims 1-9, wherein the endoscope includes a working channel having distal and proximal outlets, and wherein the apparatus comprises an internal sleeve, which is adapted to be inserted through the working channel, the internal sleeve comprising distal and proximal extremities, wherein the distal extremity is fixed to the distal end of the sleeve, and the proximal extremity protrudes from the proximal outlet of the working channel.

17. The apparatus according to claim 16, and comprising a sealing element, which is adapted to seal the proximal extremity of the internal sleeve while the endoscope is removed from the dispenser.

18. Apparatus for endoscopy, comprising:

an endoscope, which is adapted to be inserted into a body passage of a patient; and

a sleeve assembly, which comprises:

a dispenser, having entry and exit ports defining a transit passage through which the endoscope may pass; and

a flexible sleeve, at least a portion of which is bunched in a vicinity of the dispenser, the sleeve comprising a distal end, which is closed, and a proximal end, which is open and fixed to the dispenser so that as the endoscope is advanced in a distal direction through the transit passage, the endoscope enters into the sleeve through the proximal end and engages the distal end of the sleeve, thus causing the bunched portion of the sleeve to be extended so as to cover a distal part of the endoscope that protrudes through the exit port.

19. The apparatus according to claim 18, wherein the endoscope is adapted to be inserted into the body passage through a body opening of the patient, and wherein the dispenser is adapted to be placed with the exit port adjacent to the body opening, so that the distal part of the endoscope is covered by the sleeve as the endoscope passes through the body opening into the body passage.

20. The apparatus according to claim 18, wherein the bunched portion of the sleeve is adjacent to the distal end of the sleeve, and the sleeve is adapted to extend away from the bunched portion in a proximal direction so as to cover the distal part of the endoscope as the endoscope is advanced.

21. The apparatus according to claim 20, wherein the dispenser is adapted to capture the sleeve as the endoscope is retracted through the transit passage in the proximal direction, so that the sleeve is removed from a proximal part of the endoscope that has been retracted through the entry port and is gathered in the dispenser.

22. The apparatus according to claim 21, wherein the sleeve is adapted so that after the endoscope has been retracted, whereby the sleeve is removed from the proximal part of the endoscope, a further part of the sleeve extends away from the bunched portion in the proximal direction so as to cover the distal part of the endoscope as the endoscope is again advanced in the distal direction through the transit passage.

23. The apparatus according to claim 18, wherein the dispenser is adapted to capture the sleeve as the endoscope is retracted through the transit passage in a proximal direction, so that the sleeve is removed from a proximal part of the endoscope that has been retracted through the entry port and is gathered in the dispenser.

24. The apparatus according to claim 23, wherein the dispenser is adapted to gather substantially all of the sleeve, so that after the distal part of the endoscope has been retracted through the entry port, substantially all of the sleeve is contained within the dispenser.

25. The apparatus according to claim 18, wherein the sleeve assembly comprises an external sleeve, fixed to the dispenser, which is adapted to be extended from the dispenser when the endoscope is retracted through the transit passage, so that the external sleeve covers the flexible sleeve that was extended to cover the distal part of the endoscope.

26. The apparatus according to claim 25, wherein the dispenser comprises a proximal section, which defines the entry port and to which the flexible sleeve is fixed, and a distal section, which defines the exit port and to which the external sleeve is fixed, and wherein the distal section is adapted to be moved away from the proximal section of the dispenser so as to extend the external sleeve over the flexible sleeve when the endoscope is retracted through the transit passage.

27. The apparatus according to any of claims 18-27, and comprising a channel, communicating with the sleeve, for inflating the sleeve while the endoscope is advanced in the distal direction through the transit passage.

28. The apparatus according to claim 27, wherein the channel is further adapted for applying suction to the sleeve while the endoscope is retracted proximally through the transit passage.

29. The apparatus according to claim 27, wherein the entry port is adapted to fit snugly around the endoscope so as to prevent escape of pressure through the entry port when the sleeve is inflated.

30. The apparatus according to claim 27, wherein the channel is contained within the endoscope.

31. The apparatus according to claim 27, wherein the channel is contained within the dispenser, alongside the endoscope.

32. The apparatus according to any of claims 18-27, wherein the sleeve assembly comprises a working channel extending through the sleeve alongside the endoscope, the working channel comprising distal and proximal extremities, wherein the distal extremity is fixed to the distal end of the sleeve, and the proximal extremity protrudes from the dispenser.

33. The apparatus according to claim 32, and comprising a sealing element, which is adapted to seal the proximal extremity of the working channel while the endoscope is removed from the dispenser.

34. The apparatus according to any of claims 18-27, wherein the endoscope comprises a working channel having distal and proximal outlets, and wherein the sleeve assembly comprises an internal sleeve, which is adapted to be inserted through the working channel, the internal sleeve comprising distal and proximal extremities, wherein the distal extremity is fixed to the distal end of the sleeve, and the proximal extremity protrudes from the proximal outlet of the working channel.

35. The apparatus according to claim 34, and comprising a sealing element, which is adapted to seal the proximal extremity of the internal sleeve while the endoscope is removed from the dispenser.

36. A method for protecting an endoscope from contamination, comprising:

providing a flexible sleeve comprising a distal end, which is closed, and a proximal end, which is open, wherein at least a portion of the sleeve is bunched in a compaction region;

inserting a distal part of the endoscope into the proximal end and through the bunched portion of the sleeve so as to engage the distal end; and

advancing the endoscope through a body opening of a patient into a body passage while extending the bunched portion of the sleeve so as to cover the distal part of the endoscope that extends through the body opening into the body passage.

37. The method according to claim 36, wherein advancing the endoscope comprises placing the compaction region adjacent to the body opening, so that advancing the endoscope into the body passage of the patient causes the sleeve to unfold from the compaction region in order to cover the distal part of the endoscope.

38. The method according to claim 37, wherein the bunched portion of the sleeve is adjacent to the distal end of the sleeve, and wherein advancing the endoscope comprises causing the sleeve to extend away from the bunched portion in a proximal direction so as to cover the distal part of the endoscope as the endoscope is advanced.

39. The method according to claim 36, and comprising retracting the endoscope in a proximal direction, and capturing the sleeve while retracting the endoscope so that the sleeve is removed from a proximal part of the endoscope and is gathered in a location adjacent to the body opening.

40. The method according to claim 39, wherein capturing the sleeve comprises gathering substantially all of the sleeve in a receptacle, so that after the distal part of the endoscope has been retracted from the body passage, substantially all of the sleeve is contained within the receptacle.

41. The method according to claim 36, and comprising retracting the endoscope in a proximal direction, while extending an external sleeve to cover the flexible sleeve as the endoscope is withdrawn from the body passage.

42. The method according to any of claims 36-41, wherein advancing the endoscope comprises inflating the sleeve while the endoscope is advanced in into the body passage.

43. The method according to claim 42, and comprising retracting the endoscope from the body passage, and applying suction to the sleeve while the endoscope is retracted.

44. The method according to any of claims 36-41, wherein the sleeve comprises a working channel extending through the sleeve alongside the endoscope, the working channel comprising distal and proximal extremities, wherein the distal extremity is fixed to the distal end of the sleeve, and the proximal extremity protrudes from the body opening.

45. The method according to claim 44, and comprising sealing the proximal extremity of the working channel before removing the sleeve from the endoscope.

46. The method according to any of claims 36-41, wherein the endoscope comprises a working channel having distal and proximal outlets, and wherein the sleeve comprises an outer sleeve, for covering the distal part of the endoscope, and an internal sleeve comprising distal and proximal extremities, wherein the distal extremity is fixed to the distal end of the outer sleeve, and wherein the method comprises inserting the internal sleeve through the working channel so that the proximal extremity protrudes from the proximal outlet of the working channel.

47. The method according to claim 46, and comprising sealing the proximal extremity of the internal sleeve before removing the internal sleeve from the working channel.